



ATTORNEY DOCKET No. 64337.000002

IFW
S

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :) Examiner: Unknown
))
John LAIR, et al.) Group Art Unit: Unknown
))
Serial No.: 10/828,480) Attorney Docket No.: 64337.000002
))
Filed: April 21, 2004))

For: **WIRELESS HEADSET FOR
COMMUNICATIONS DEVICE**

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

PETITION TO MAKE SPECIAL

This is a Petition to Make Special under 37 C.F.R. § 1.102(d) for accelerated examination of the above-referenced application that was filed on April 21, 2004. The petition fee under 37 C.F.R. § 1.17(i) is enclosed. The Commissioner is authorized to charge any further fees or credit any overpayments to Deposit Account No. 50-0206. This Petition To Make Special is being made under MPEP 708.02 (VIII). In accordance with that section, Applicants hereby request and submit:

- A. The present Petition To Make Special with fee.
- B. All claims (claims 1-41) are directed to a single invention. If the examiner determines that all claims presented are not obviously directed to a single invention, Applicants will make an election without traverse.

C. Applicants have caused a pre-examination patentability search to be made directed to the invention as claimed in the application. Applicants engaged a professional patent research firm to identify any relevant art. The patent research firm performed a search at the U.S. Patent and Trademark Office, with the field of search covering Class 381, subclasses 376 and 381, and Class 455, subclasses 569.1 and 575.2. The patent research firm further conducted a keyword search in Class 181, subclasses 130 and 135, Class 381, subclasses 330 and 370, and Class 455, subclass 511.1, as well as a computer database search on the USPTO EAST and WEST systems. A literature search also was conducted on the Internet for relevant non-patent documents. Examiner William Cumming in Art Unit 2744 (Class 455) was consulted in confirming the field of search.

The patent research firm's search was directed towards a wireless headset incorporating a Push to Talk (PTT) function. In particular, the search was directed towards a wireless headset having a PTT button to enable half-duplex communication with a two-way radio or other wireless communication device capable of operating in half-duplex. The user may connect a wireless adaptor to the two-way radio on the user's belt or elsewhere around the user and wear the headset on an ear. The PTT button is located on the headset, or may be located separate from the headset and two-way radio and is wirelessly connected to the device and/or headset. The PTT button may be located on or via a wire to the wireless adaptor of the two-way radio.

D. An Information Disclosure Statement is being filed herewith that contains a copy of each reference identified as a result of the pre-examination search.

E. The independent claims of the application are:

1. A wireless headset comprising:

a switch for indicating a provision of audio information for transmission; and

means for wirelessly transmitting a signal representative of an engagement of the switch.

18. An apparatus comprising:

an interface operably connected to a half-duplex communications device;
a wireless interface;
means for receiving a first transmit mode signal via the wireless interface, the transmit mode signal indicating a provision of audio information for transmission by the half-duplex communications device; and
means for providing a second transmit mode signal to the half-duplex communications device via the interface to direct the half-duplex communications device to switch to a transmit mode.

26. A system comprising:

a half-duplex communications device; and
a headset wirelessly connected to the half-duplex communications device;
wherein the headset is adapted to wirelessly transmit a transmit mode signal for reception by the half-duplex communications device, the transmit mode signal indicating a provision of audio information by the headset for transmission by the half-duplex communications device; and
wherein the half-duplex communications device is adapted to transmit at least a portion of the audio information based at least in part upon receipt of the transmit mode signal.

34. A system comprising:

a half-duplex communications device;

a transmit switch assembly wirelessly connected to the half-duplex communications device; and

a headset wirelessly connected to the half-duplex communications device;

wherein the transmit switch assembly is adapted to wirelessly transmit a transmit mode signal for reception by the half-duplex communications device, the transmit mode signal indicating a provision of audio information by the headset for transmission by the half-duplex communications device; and

wherein the half-duplex communications device is adapted to transmit at least a portion of the audio information based at least in part upon receipt of the transmit mode signal.

Claims 1-41 are pending in the present application and are grouped into claim set I (claims 1-17), claim set II (claims 18-25), claim set III (claims 26-33) and claim set IV (claims 34-41) for ease of reference.

Claim set I recites at least the limitations of a wireless headset comprising: 1) a switch for indicating a provision of audio information for transmission; and 2) means for wirelessly transmitting a signal representative of an engagement of the switch.

Claim set II recites at least the limitations of an apparatus comprising: 1) an interface operably connected to a half-duplex communications device; 2) a wireless interface; 3) means for receiving a first transmit mode signal via the wireless interface, the transmit mode signal indicating a provision of audio information for transmission by the half-duplex communications device; and 4) means for providing a second transmit mode signal to the half-duplex

communications device via the interface to direct the half-duplex communications device to switch to a transmit mode.

Claim set III recites at least the limitations of a system comprising: 1) a half-duplex communications device; 2) a headset wirelessly connected to the half-duplex communications device; 3) wherein the headset is adapted to wirelessly transmit a transmit mode signal for reception by the half-duplex communications device, the transmit mode signal indicating a provision of audio information by the headset for transmission by the half-duplex communications device; and 4) wherein the half-duplex communications device is adapted to transmit at least a portion of the audio information based at least in part upon receipt of the transmit mode signal.

Claim set IV recites at least the limitations of a system comprising: 1) a half-duplex communications device; 2) a transmit switch assembly wirelessly connected to the half-duplex communications device; 3) a headset wirelessly connected to the half-duplex communications device; 4) wherein the transmit switch assembly is adapted to wirelessly transmit a transmit mode signal for reception by the half-duplex communications device, the transmit mode signal indicating a provision of audio information by the headset for transmission by the half-duplex communications device; and 5) wherein the half-duplex communications device is adapted to transmit at least a portion of the audio information based at least in part upon receipt of the transmit mode signal.

F. Applicants discuss in detail the references uncovered in the pre-examination search deemed to be the most relevant to the claims pending in the application as follows, pointing out how the subject matter claimed is patentable over these references:

1. U.S. Patent No. 4,132,861 (“Frieder”)

Frieder discloses a headset for use in a voice communication system which provides a common audio signal, such as a radio receiver signal, to a plurality of such headsets. The headset includes an earphone having a double voice coil and an ambient sound microphone arranged to receive sounds from the surrounding environment. One of the voice coils is coupled to the common audio signal, while the other coil receives a signal from the ambient sound microphone to permit simultaneous monitoring of the two signals while preventing undesirable signal interaction.

In Frieder, the headset comprises a conventional PTT button, and the headset is connected to a base station via a wire. The status of the PTT switch is not transmitted wirelessly. In regard to claim set I, Frieder does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Frieder does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Frieder does not disclose wirelessly transmitting a transmit mode signal.

Thus, Frieder does not teach the claims of claim sets I-IV.

2. U.S. Patent No. 5,101,504 (“Lenz”)

Lenz discloses a headset assembly, of the type which includes a headband with earphones for delivering sound to the wearer, a microphone into which the wearer talks, and a PTT switch that is operated when the wearer wishes to talk, which facilitates operation of the switch. The switch has an actuator part extending from one of the sides of the headset, such as the left side, to a location above the left shoulder of the wearer. The wearer activates the switch by lifting his left shoulder to press on the actuator part of the switch.

Lenz discloses a conventional PTT function with a novel shoulder-operated switch. The status of the PTT switch is not transmitted wirelessly. In regard to claim set I, Frieder does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Frieder does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Frieder does not disclose wirelessly transmitting a transmit mode signal.

Thus, Lenz does not teach the claims of claim sets I-IV.

3. U.S. Patent No. 5,118,309 (“Ford”)

Ford discloses a simplex radio-accessories interface connector which connects a simplex radio having a speaker amplifier and a push-to-talk (PTT) detector to accessories which include an earpiece speaker and a PTT switch. The connector has a first connector mating assembly for coupling the connector to the radio and a second connector mating assembly for coupling the connector to the accessories. Inside the connector, a receive audio line couples the speaker amplifier to the earpiece speaker and a PTT detect line couples the PTT detector to the PTT switch. At the second connector mating assembly, the receive audio and the PTT detect lines are combined.

In Ford, a PTT detect line (e.g., wire) couples the PTT detector to the PTT switch. Thus, the status of the PTT switch is not transmitted wirelessly. In regard to claim set I, Ford does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Ford does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Ford does not disclose wirelessly transmitting a transmit mode signal.

Thus, Ford does not teach the claims of claim sets I-IV.

4. U.S. Patent No. 5,265,264 (“Dzung”)

Dzung discloses a radio or speaker-microphone unit which includes a radio housing and a first or second battery housing. A speaker is disposed in the radio housing and two microphones are disposed respectively, in the radio housing and in the second battery housing. The battery housings are selectively attachable with the radio housing to provide a selection between first and second relative positions, with one of the positions providing a handset configuration and the other providing a speaker-microphone configuration. The speaker-microphone configuration utilizes a conventional PTT button. A switch senses which of the battery housings is attached and disables the microphone in the radio housing if the second battery housing is attached.

Neither the position of the PTT switch nor the configuration of the battery housing is wirelessly transmitted. In regard to claim set I, Dzung does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Dzung does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Dzung does not disclose wirelessly transmitting a transmit mode signal.

Thus, Dzung does not teach the claims of claim sets I-IV.

5. U.S. Patent No. 5,276,916 (“Pawlish”)

Pawlish discloses a radio or speaker-microphone unit which includes a housing having first and second portions. A speaker is disposed in one of the portions and a microphone in the other of the portions. The portions are movable between first and second relative positions, with one of the positions providing a handset configuration and the other providing a speaker-microphone configuration. A switch senses the relative position of the housing portions and adjusts the gain of an audio amplifier.

As in Dzung, the status of the PTT switch and positions of the portions in Pawlish are not transmitted wirelessly. In regard to claim set I, Pawlish does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Pawlish does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Pawlish does not disclose wirelessly transmitting a transmit mode signal.

Thus, Pawlish does not teach the claims of claim sets I-IV.

6. U.S. Patent No. 5,448,620 (“Gershkovich”)

Gershkovich discloses communications devices that are operable in both a radio dispatch mode and a telephone interconnect mode. The devices may comprise a PTT switch. To mitigate the problem of a relatively high level audio signal from being unexpected broadcast from an ear-piece of the device when the ear-piece is proximally located with an ear of a user of the device, the communications device is arranged to ensure that, at least during an initial period of operation in either of the two operating modes, audio signals of relatively high level do not originate from the ear-piece, thereby preventing a change in audio power output from the ear-piece that may potentially cause damage to the hearing of a user of the radio communications device.

Gershkovich relates to controlling volume on a communications device. In regard to claim set I, Gershkovich does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Gershkovich does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Gershkovich does not disclose wirelessly transmitting a transmit mode signal.

Thus, Gershkovich does not teach the claims of claim sets I-IV.

7. U.S. Patent No. 5,479,474 (“Schwartzman”)

Schwartzman discloses a radio telephone for a vehicle having means for switching between a handset mode and a hands-free mode, and control means responsive to said means for switching, said control means controlling the telephone such that in hands-free mode the party speaking at a given time has priority in the conversation while in handset mode the party holding the handset has priority at a given time.

In Schwartzman, the positions (or status) of the means for switching and the control means are not wirelessly transmitted. Instead, the means (3) and control means (4, 7, 8, 9, 10, 11) are connected in a physically connected circuit (see FIG. 1). The two means merely enable the transmission and reception of audio information; there is no transmission that specifies the status of either means. In regard to claim set I, Schwartzman does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Schwartzman does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Schwartzman does not disclose wirelessly transmitting a transmit mode signal.

Thus, Schwartzman does not teach the claims of claim sets I-IV.

8. U.S. Patent No. 5,748,707 (“Sanserino”)

Sanserino discloses a remote wireless speakerphone system that comprises a base receiver for direct connection to telephone company lines to receive and transmit voice information over the lines. The base receiver has a speaker which has sufficient power to make voice information received on the telephone line audible in a room. The system also includes a transmitter unit sized to be carried on the person of the user. The transmitter unit includes a

microphone positioned to take up the speaking voice of the user and a radiotransmitter which transmits this signal to the receiver. The receiver delivers this voice information to the telephone company line. In this way, the user is free of wires connecting him to the base unit and can conduct two-way conversation by listening to the speaker on the base unit and speaking into the microphone he carries.

In Sanserino, switch 30 on the portable portion is actuated to enable wireless audio transmission to a base station. Switch 30 accordingly functions as a conventional PTT switch. A receiver 46 at the base station receives the audio transmission, and this reception indicates that the portable portion is transmitting. There is no wireless signal that specifically represents that the switch is engaged, and there is no wireless transmit mode signal. In regard to claim set I, Sanserino does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Sanserino does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Sanserino does not disclose wirelessly transmitting a transmit mode signal.

Thus, Sanserino does not teach the claims of claim sets I-IV.

9. U.S. Patent No. 5,790,681 (“Leppalahti”)

Leppalahti discloses a fixing assembly for a helmet headset that comprises a body piece, a microphone attached to the body piece, an earphone attached to the body piece, and cabling for taking signals to the earphone and from the microphone. An elongated tongue piece is attached to the body piece, and the body piece includes at least two hole perforations with a width equal to that of the tongue piece.

Leppalahti discloses a microphone-speaker system that is physically connected (e.g., via cord 11) to a base transmission/reception station 23 for communicating with other parties. There

is no need to wirelessly transmit the status of the speakers and microphone to the base station because they are physically connected to the base station. Thus, in Leppalahti, there is no wireless transmit mode signal for the microphone or base station, and there is no signal representing that a transmit switch is engaged. In regard to claim set I, Leppalahti does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Leppalahti does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Leppalahti does not disclose wirelessly transmitting a transmit mode signal.

Thus, Leppalahti does not teach the claims of claim sets I-IV.

10. U.S. Patent No. 5,969,698 (“Richard”)

Richard discloses portable communication equipment having a virtual display including display electronics and optics for providing a virtual image in the display, a virtual control panel image viewable in the virtual display as a portion of the virtual image and cursor electronics connected to the display electronics for producing a manually controllable cursor virtual image in the display. The virtual image control panel is connected to be operable with the cursor virtual image and further connected to operate the portable communication equipment. Manual controls, connected to the cursor electronics for controlling the position and function of the cursor virtual image, are mounted on the portable communication equipment and externally accessible by an operator.

In Richard, a PTT switch 36 is physically coupled to a base transmission station 5. Because the PTT switch 36 is physically coupled to the base transmission station that communicates with other parties, there is no need to wirelessly transmit the state of actuation of the PTT switch. Thus, in Richard, there is no wireless transmit mode signal for the microphone

or base station, and there is no signal representing that a transmit switch is engaged. In regard to claim set I, Richard does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Richard does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Richard does not disclose wirelessly transmitting a transmit mode signal.

Thus, Richard does not teach the claims of claim sets I-IV.

11. U.S. Patent No. 5,987,146 (“Pluvinage”)

Pluvinage discloses an open ear canal hearing aid system which comprises a plurality of ear canal tubes sized for positioning in an ear canal of a user so that the ear canal is at least partially open for directly receiving ambient sounds. The open ear canal hearing aid system further comprises a sound processor for amplifying ambient sounds received through one of the ear canal tubes within a predetermined frequency range and to produce processed sounds and for supplying the processed sounds to the second ear canal tube. According to other embodiments of the present invention, the speaker and/or microphone can be located in the ear canal at the end of the ear canal tubes. In these embodiments, the speaker and/or microphone are electrically connected to the sound processor by wires in the ear canal tubes.

It is believed that Pluvinage does not involve wireless communication. Because all of the claims involve wireless communication, Pluvinage does not teach the claims of claim sets I-IV.

12. U.S. Patent No. 6,104,816 (“Downs”)

Downs discloses a head-supported two-way communication system. The system combines a thin substrate forehead or head-bone microphone, a noise filter embedding the microphone, a universal impedance matcher connecting the microphone to a two-way radio, an unobstructed and unfettered-access PTT switch, and a pair of rigidly positionable noise protected

speakers, all secured to a head-supported structure permitting proper location of the embedded microphone, the switch, and the speakers for a particular user and application.

Downs discloses a conventional PTT switch 40 that is physically coupled to the two-way radio 60 for communicating with other parties. Because the two-way radio is coupled to the PTT switch, there is no need to wirelessly transmit the state of actuation of the switch to the two-way radio. In regard to claim set I, Downs does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Downs does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Downs does not disclose wirelessly transmitting a transmit mode signal.

Thus, Downs does not teach the claims of claim sets I-IV.

13. U.S. Patent No. 6,121,881 (“Bieback”)

Bieback discloses protective mask communication systems for use in hazardous environments, e.g., firefighting and hazardous waste clean-up operations. The systems allow wearers of protective masks working in a hazardous area to readily communicate both with each other and with personnel and automated systems outside of the area. Preferred systems provide short range radio communication between mask wearers.

The protective mask of Bieback incorporates on a single circuit a conventional PTT switch and the mask transceiver for communicating with other parties. Because the “base” transceiver is physically coupled to the PTT switch, there is no need to transmit the state of actuation of the PTT switch wirelessly. In regard to claim set I, Bieback does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Bieback does not disclose a means for receiving a first transmit mode signal via a

wireless interface. In regard to claim sets III & IV, Bieback does not disclose wirelessly transmitting a transmit mode signal.

Thus, Bieback does not teach the claims of claim sets I-IV.

14. U.S. Patent No. 6,298,249 (“Locarno”)

Locarno discloses a radio interface apparatus in combination with a lapel mounted microphone and speaker and a radio and with or without a head-protective helmet, radio interface apparatus in combination with a lapel-mounted radio and with or without a head-protective helmet, and radio interface apparatus for being mounted to the nape device of a head-protective helmet.

The lapel-mounted radio 38 of Locarno incorporates a conventional PTT button 41 and an internal transceiver and antenna 42 for communicating with other parties. In regard to claim set I, Locarno does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Locarno does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Locarno does not disclose wirelessly transmitting a transmit mode signal.

Thus, Locarno does not teach the claims of claim sets I-IV.

15. U.S. Patent No. 6,304,559 (“Jacklin”)

Jacklin discloses a method for implementing a timed division multiple access protocol for digital communications between a radio transceiver and a repeater or another radio transceiver comprising the steps of dividing a radio communication into a plurality of frames having a predetermined length of time; dividing each frame into: a plurality of downlink slots, each downlink slot containing a transmission from the repeater to the transceiver; and a plurality of uplink slots, each uplink slot containing a transmission from the transceiver to the repeater.

As shown in FIG. 3 of Jacklin, the personal communications unit/radio transceiver comprises an audio codec 30 and a DSP 38. The audio codec 30 writes audio data received by the microphone to the DSP 38. The DSP 38 processes this data using a Voice Activated Switch (VOX) algorithm, or a push-to-talk (PTT) switch, to determine if speech is present. Thus, the VOX and PTT are used in a conventional manner, and the fact of the actuation of the PTT switch is not transmitted wirelessly. In regard to claim set I, Jacklin does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Jacklin does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Jacklin does not disclose wirelessly transmitting a transmit mode signal.

Thus, Jacklin does not teach the claims of claim sets I-IV.

16. U.S. Patent No. 6,351,653 (“Alberth”)

Alberth discloses a cellular telephone that forms part of a wireless communication system and has simultaneous communication of radio and cellular signals. The wireless communication system has a base station and one or more radios. The cellular telephone has control circuitry, a cellular transceiver, a radio transceiver, a microphone, and a speaker. The simultaneous communication of radio and cellular signals permits a radio user to participate in a cellular phone call and permits a cellular telephone user to participate in the radio communication. Simultaneous communication is communication of cellular and radio signals at the same time and at substantially the same time.

As described in col. 6 lines 8-41, the PTT switch enables a control signal to change the status of the transceiver, which is believed to be physically coupled to the PTT switch. Thus, the operation of the PTT switch (or VOX) is conventional. In regard to claim set I, Alberth does not

disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Alberth does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Alberth does not disclose wirelessly transmitting a transmit mode signal.

Thus, Alberth does not teach the claims of claim sets I-IV.

17. U.S. Patent No. 6,459,371 (“Pike”)

Pike discloses a locating device for use with a portable two-way radio transceiver, for enabling the radio transceiver to transmit a locating signal containing position locating information. The locating device comprises a sensor for sensing a signal containing position locating information, a memory for storing position locating information obtained from the signal, a communications device for communicating with the radio transceiver, a control device for controlling the radio transceiver via the communications device and an activating device for activating the locating device. When the locating device is activated, the control device causes the radio transceiver to transmit a locating signal containing the position locating information stored in the memory.

As described in col. 9 lines 37-45: “Should the user wish to speak to the control centre then closing push to talk switch 505 will instruct the microcontroller 504 to close the contacts of push to talk relay 512 sending a transmit signal to the lapel unit connector via transmit function wires 515. If desired, the lapel unit could automatically send lapel unit identification and location data by means of modem 507 and transmit audio wires 513 each time the press to talk button 505 is activated.” The lapel unit is connected to the transceiver by connector 518. This disclosure of the PTT functionality does not disclose a wireless PTT signal. In regard to claim set I, Pike does not disclose a means for wirelessly transmitting a signal representative of an

engagement of a switch. In regard to claim set II, Pike does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Pike does not disclose wirelessly transmitting a transmit mode signal.

Thus, Pike does not teach the claims of claim sets I-IV.

18. U.S. Patent No. 6,522,894 (“Schmidt”)

Schmidt discloses a simplified method of controlling the operating mode of a wireless communications device, particularly the speaker mode, including operating a wireless communications device according to a selected default mode. The method of audio output, such as through a loud speaker or through a quieter speaker, is determined, at least in part by the default mode setting. The device includes at least a first key and a second key. Pressing the first key causes the device to automatically initiate a call session in radio mode and stay in radio mode until the end of the call session. On the other hand, pressing the second key causes the device to automatically initiate a call session in phone mode and stay in phone mode until the end of the call session. In either case, the wireless communications device reverts to the default mode when the call session ends. By doing so, the user is provided with a simple method for temporarily switching to the desired mode of operation, without the necessity of first determining the current mode of the wireless communications device and through the simple press of a single key. This method is particularly adapted for use with wireless communications devices having two separate speakers, a quiet one for phone mode and a louder one for radio mode.

Schmidt discloses an integrated telephone/radio device 20. There is no need to wirelessly transmit a PTT mode. In regard to claim set I, Schmidt does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Schmidt does not disclose a means for receiving a first transmit mode signal via a wireless

interface. In regard to claim sets III & IV, Schmidt does not disclose wirelessly transmitting a transmit mode signal.

Thus, Schmidt does not teach the claims of claim sets I-IV.

19. U.S. Patent No. 6,671,379 (“Nemirovski”)

Nemirovski discloses an earset including a housing positionable with respect to an ear of a person, a microphone disposed with respect to the housing for insertion into the ear of a person, the microphone operable to detect a change in air pressure within the ear while the person speaks and to produce an electrical microphone signal corresponding to the internally detected change in air pressure and a speaker disposed with respect to the housing and operable to produce a sound corresponding to an electrical speaker signal. The earset also includes a circuit coupled to receive the microphone signal and the speaker signal and operable to produce a corrected microphone signal.

Nemirovski discloses an ear-microphone for use with a communication device such as a mobile phone; however, it does not disclose a PTT feature or any other similar switch. A purpose of the invention is to prevent users from having to use their hands in the operation of a phone. Accordingly, in regard to claim set I, Nemirovski does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Nemirovski does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Nemirovski does not disclose wirelessly transmitting a transmit mode signal.

Thus, Nemirovski does not teach the claims of claim sets I-IV.

20. U.S. Patent No. 6,681,022 ("Puthuff")

Puthuff discloses a two-way communication earpiece that is a small, inconspicuous, and comfortable earpiece which fits behind the ear for sound delivery and pickup. The earpiece may be used with a variety of communication devices, such as telephones, cellular telephones, two-way radios, radios, tape players, CD players, and televisions. The earpiece is configured to be received behind the ear of a user with a sound delivery tube extending from behind the ear into the ear canal of the user. An eartip positioned on the sound delivery tube is preferably a non-occluding type eartip which allows ambient sound to enter the ear canal around the eartip. A microphone is positioned on the earpiece above the ear for voice pickup.

Although Puthuff's earpiece may be used with a half-duplex communication device, Puthuff does not disclose a PTT feature or other similar switch. Accordingly, in regard to claim set I, Puthuff does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Puthuff does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Puthuff does not disclose wirelessly transmitting a transmit mode signal.

Thus, Puthuff does not teach the claims of claim sets I-IV.

21. U.S. Patent Appl. Pub. No. 2002/0068600 ("Chihara")

Chihara discloses a mobile telephone device that effects image and voice communication with another party of communication through a network. The mobile telephone device transmits the voice received from the other party, to a headset having a voice input/output unit by local radio communication (such as bluetooth), and receives by local radio communication and transmits to the other party the voice received from the headset. Also, the mobile telephone device transmits the image received from the other party to a wearable radio communication

device having an imaging unit and a display unit by local radio communication, and receives by local radio communication and transmits to the other party the image from the wearable radio communication device. The wearable radio communication device receives an image from the mobile telephone device by local radio communication and displays it on the display unit, and picks up an image by the imaging unit and transmits it to the mobile telephone device by local radio communication. The headset receives the voice from the mobile telephone device by local radio communication and outputs it from the voice input/output unit while at the same time transmitting the voice input through the voice input/output unit, to the mobile telephone device by local radio communication.

As described in paragraph 0084, Chihara discloses a switch circuit 5302 for switching between transmission and receiving for half-duplex bi-directional communication. When the wrist watch-type information apparatus 12B transmits a signal, the switch circuit 5302 connects the antenna filter 5301 to the output terminal of the power amplifier 5335, and when receiving a signal, connects the antenna filter 5301 to the input terminal of the RF amplifier 5321. Presumably switch circuit 5302 uses conventional switching means, such as PTT and/or VOX. Chihara does not disclose wirelessly transmitting the switch mode of switch 5302. Accordingly, in regard to claim set I, Chihara does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Chihara does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Chihara does not disclose wirelessly transmitting a transmit mode signal.

Thus, Chihara does not teach the claims of claim sets I-IV.

22. U.S. Patent Appl. Pub. No. 2003/0059078 (“Downs”)

Downs discloses directional piezoelectric devices that may be used along with new head mounted acoustic technologies for improved voice communication systems in inherently noisy environments. The head mounted technologies utilize microphones that are activated by pressure wherein the applied trigger pressure further serves to improve efficiency of the microphones. Also provided are head pieces that include both microphones and speakers that are particularly useful for harsh environments such as those encountered by fire fighters. The head pieces are capable of further functions related to contact with the head of the user, such as reporting physiological variables of the user, along with oral communications.

Downs discloses various embodiments, including a contact microphone comprising a microphone and a PTT switch that presses the microphone against a user such that sounds emanating from the user are effectively transmitted to the microphone. Downs also discloses a thin talk/listen head piece for an adult user, comprising a flat material big enough to simultaneously cover the user's ear and the sagital arc anterior to the user's ear, a speaker within the flat material, a microphone within the flat material and located anterior to the speaker and a PTT switch positioned above or near the microphone such that manual activation of the PTT switch will exert pressure onto the microphone, increasing contact between the microphone and underlying skin.

The PTT switch 4 disclosed by Downs is used in a conventional manner, and the PTT signal is not transmitted wirelessly. Accordingly, in regard to claim set I, Downs does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Downs does not disclose a means for receiving a first transmit mode

signal via a wireless interface. In regard to claim sets III & IV, Downs does not disclose wirelessly transmitting a transmit mode signal.

Thus, Downs does not teach the claims of claim sets I-IV.

23. U.S. Patent Appl. Pub. No. 2003/0120487 (“Wang”)

Wang discloses a data handling system that dynamically responds to changing noise power conditions to separate valid data from noise. A reference power level acts as a threshold between dynamically assumed noise and valid data, and dynamically refers to the reference power level changing adaptively with the background noise. The introduction of dynamic noise control in VOX (Voice Activated Transmission) improves a VOX device operation in a noisy environment, even when the background noise profiles are changing. Processing is on a frame by frame basis for successive frames. The threshold is adaptively changed when a comparison of frame signal power to the threshold indicates speech or the absence of speech in the compared frame repeatedly and continuously for a period of time involving plural successive frames having no valid speech or noise above the threshold to correspondingly reduce or increase the threshold by changing the threshold to a value that is a function of the input signal power.

Wang discloses a switch 506 that either connects receiver 508 with use interface 509 or connects speech input 507 with speech transmitter 510 for the half-duplex operation. Switch 506 is actuated by a modified VOX method, but otherwise operates as a traditional VOX. Accordingly, while audio may be transmitted wirelessly, a switch mode signal is not transmitted wirelessly. In regard to claim set I, Wang does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Wang does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Wang does not disclose wirelessly transmitting a transmit mode signal.

Thus, Wang does not teach the claims of claim sets I-IV.

24. U.S. Patent Appl. Pub. No. 2003/0224825 (“Cox”)

Cox discloses a communication system that includes a first communication unit capable of communicating over a full-duplex persistent-connection link provided by a full-duplex network and a second communication unit capable of communicating over a half-duplex dispatch link provided by a dispatch RF system. The system also includes a dispatch gateway. The dispatch gateway receives signals from a first communication unit over a full-duplex persistent link through a full-duplex network and provides communication between the first communication unit and a single dispatch communication unit or a group of dispatch communication units over a half-duplex communication link through a dispatch RF system. The gateway operates in a manner so as to permit communication between full-duplex terminals and half-duplex terminals.

The technical field of Cox is a system for permitting communication between a radio network supporting half-duplex, PTT communication and a network supporting full-duplex persistent connections. Depressing a DTMF key such as “*” or “#” on a full-duplex phone handset or other device (101-104) acts as a request to transmit an audio signal to a half-duplex device on the network. The “*” key on a full-duplex device is analogous to a PTT switch on a traditional half-duplex network, except that the “*” key is merely a request to transmit, while a PTT switch typically enables transmission. However, an RF dispatch system 150 must approve or disapprove the transmission request before half-duplex communication is enabled. Thus, the “*” is not a signal representative of an engagement of a switch wherein the switch indicates a provision of audio information for transmission. Thus, Cox does not teach the claims of claim set I. Similarly, Cox does not teach a transmit mode signal wherein the transmit mode signal

indicates a provision of audio information for transmission by a half-duplex communications device. Accordingly, Cox does not teach the claims of claim sets II, III, and IV.

Thus, Cox does not teach the claims of claim sets I-IV.

25. U.S. Patent Appl. Pub. No. 2003/0224838 (“Skillicorn”)

Skillicorn discloses a communication system for a mask including an externally mounted microphone and ear speaker assembly. The microphone and ear speaker assembly are adapted for electrical interconnection with a radio. A lapel microphone assembly optionally including a transmission activation device 85 (e.g., a PTT switch), a microphone, a speaker and an amplifier may be included. An interconnection cable connecting the microphone and ear speaker assembly to a lapel microphone assembly facilitates connection and disconnection between the assemblies.

The PTT switch 85 is electrically coupled to the speaker, microphone, and radio. Thus, there is no need to wirelessly transmit a transmit mode signal. In regard to claim set I, Skillicorn does not disclose a means for wirelessly transmitting a signal representative of an engagement of a switch. In regard to claim set II, Skillicorn does not disclose a means for receiving a first transmit mode signal via a wireless interface. In regard to claim sets III & IV, Skillicorn does not disclose wirelessly transmitting a transmit mode signal.

Thus, Skillicorn does not teach the claims of claim sets I-IV.

26. JP 10150694 (“Matsukuma”)

Matsukuma discloses a microphone circuit directed to reducing noise by synthesizing the outputs of two microphones. The opening of a microphone unit is packaged toward the side of the opening of a hand microphone case body and transmission audio signals are supplied to the microphone unit. At this point, unrequited audio like the output of an ear speaker and the operation sound of a switch, simultaneously enters the microphone unit by two routes. In the

meantime, the opening of the microphone unit is packaged toward the inner side of the case body of a hand microphone and arranged so as not to input the transmission audio signals. Thus, only the unrequited audio like the output of the ear speaker and the operation sound of a PTT switch or the like, enters the opening of the microphone unit through the interior of the case body. Also, after supplying the output signals of the microphone unit to a phase inversion circuit and inverting a phase, they are synthesized with the output signals on the side of the microphone unit in a synthesizer.

The Matsukuma reference has an English translation of an invention summary and a non-English specification. The English summary does not teach a wireless signal that specifically represents that the switch is engaged, nor does it teach a wireless transmit mode signal. Thus, based on the English summary and drawings, Applicants believe that Matsukuma does not teach the claims of claim sets I-IV.

In summary, the references discovered by Applicants during the pre-examination search primarily relate to: conventional PTT switches that enable transmission of audio from a communication device. The claimed invention generally recites wirelessly transmitting a transmit mode signal, such as a signal representative of an engagement of a PTT switch. The references fail to show or suggest an apparatus or system as described and claimed by the present invention.

On the basis of the foregoing, Applicants respectfully request granting this Petition To Make Special so that the application will be taken up promptly. It is believed that the claims in the application are directed to a single invention. However, should the Examiner issue a Restriction, Applicants preliminarily elect the claims of claim set I.

Respectfully submitted,

HUNTON & WILLIAMS LLP

By:


Carl L. Benson
Registration No. 38,378

1900 K Street, N.W.
Washington, D.C. 20006-1109
Telephone: (202) 955-1500
Facsimile: (202) 778-2201
Date: July 19, 2004